Development of two visual survey protocols for the study of coastal rocky reef marine food webs in the NE Mediterranean

Kytinou E[1,2]*, Issaris Y[2], Sini M[1], Katsanevakis S[1]

[1]*University of the Aegean, Department of Marine Sciences, Lofos Panepistimiou, 81100 Mytilene, Greece*
[2]*Hellenic Centre for Marine Research (HCMR), Institute of Oceanography, Anavyssos 19013, Attica, Greece*

* e-mail: ekytinou@gmail.com

The rapid degradation of marine ecosystems poses the need to develop efficient tools for assessing their status. Two visual survey protocols, employed by diving, namely *ECObiomass* and *ECOfast*, were developed to study the trophic structure and spatial variability of coastal marine food webs in areas with differential fishing pressure. Both protocols were employed to assess 22 rocky reef stations, in the Aegean and Ionian seas (Greece). Stations were selected based on three levels of fishing pressure, according to a previously developed fishing pressure index for coastal small-scale fisheries in the region. The *ECObiomass* protocol aims to assess the biomass of most trophic levels along three 25m long strip transects, at 10 m depth. Stereo video was used to count fish and estimate their sizes. Photoquadrat samples were taken to assess abundance and area cover of primary producers and sessile invertebrates. *In situ* counts and length measurements of cryptic invertebrates were used to assess their abundance. Algal samples were selectively collected for the dry weight estimation of the most common species per station. Fish and invertebrate biomass was estimated for most species, using available allometric length-weight relationships. The *ECOfast* protocol is a rapid assessment method aiming to provide an index of the ecological status of reefs. It covers a larger spatial extent and focuses on a specific set of selected species (i.e. keystone, commercially important, allochthonous). In each station, six transects of 10-minute visual scanning at constant swimming speed were performed at the 5 and 15 m depth zones. The maximum total length of fish and the relative abundance of invertebrates were assessed in the same transects through visual estimates and direct counts, respectively. Algal communities were characterised qualitatively per transect, based on the percentage cover of perennial, shrubby, turf and encrusting algal species.